UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,273	10/03/2003	Michel Linares	Q77862	8742

23373 7590 04/08/2008

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
SAN JUAN, MARTINJERIKO P	

ART UNIT	PAPER NUMBER
2132	

MAIL DATE	DELIVERY MODE
04/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/677,273	LINARES, MICHEL	
	Examiner	Art Unit	
	MARTIN JERIKO P. SAN JUAN	2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is responsive to Applicant's Remarks filed on December 26, 2007.

Claiming foreign priority: #0212404, France, 10/07/2002

Certified copies of the priority documents have been received.

Claims 1-8 were originally pending.

Claims 1-8 were rejected on January 17, 2007.

Claims 1 and 4 were amended. New claim 9 was added.

Claims 1-9 were rejected on August 23, 2007.

Claim 9 has been cancelled.

Claims 1-8 are currently pending.

Response to Arguments

1. Applicant's arguments filed on December 26, 2007 have been fully considered but they are not persuasive.

Applicant respectfully submits that Hakkarainen does not disclose or suggest processing the received messages so that messages received successively in a same observation time window F_n containing t_n with a width ΔT_F are decoded using a decoding sequence DC_n adapted to decode the dynamic code C_n where the clock of the receiving platform is synchronized to the date t_1 on receiving the first message M_1.

The Examiner respectfully disagrees. The argument presented in the previous Office Action, dated on August 23, 2007, points that Swensen teaches ***the processing of the received messages*** from the platform as a function of their reception date t_r based on a clock specific to receiving platform [US PN 5420883, Fig 20, Itm 334 -- Internal clocks of transmitter and receiver modules.] ***and that said messages are received successively in a same observation time window F_n containing t_n with a width ΔT_F*** [Messages in a TDMA communication are received successively in a certain and same "timeslot/timewindow" within a TDMA cycle/period.] ***where the clock of the receiving platform being synchronized to the date t_1 on receiving said first message M_1*** [In TDMA communication, clocks are synchronized based on whether the correct message corresponding to a certain timeslot within a TDMA cycle/period has been received.].

Hakkarainen teaches only the parts that ***each message M_n, of a received messages, are being coded by means of a dynamic code C_n specific to a date t_n of sending said message*** [US Pub No. 2003/0147532 A1, Pg 3, Par 0029 – Decryption information associated with the first microperiod and future decryption information (associated with future microperiods) being provided by the Service Provider reads on dynamic code C_n specific to said date/time t_n of sending message. Dynamic code C_n used on each message, M_n, is defined by Applicant on page 4, Ln 14-20 of the Specification.] and ***using a decoding sequence, DC_n, adapted to decode the dynamic code, C_n,*** [US 2003/0147532 A1, Pg 3, Par 0029 – Service Provider encrypts the decryption information associated with the first microperiod using e_0. This reads on the decoding

sequence DC_n.] ***where a clock of a receiving platform being synchronized to the date t_1 on receiving said first message M_1*** [US 2003/0147532 A1, Pg 3, Par 29 – The Service Provider also provides the recipients with any necessary synchronization information].

Swensen, combined with Hakkarainen, in the manner described in the previous action would have taught processing the received messages so that messages received successively in a same observation time window F_n containing t_n with a width ΔT_F are decoded using a decoding sequence DC_n adapted to decode the dynamic code C_n where the clock of the receiving platform is synchronized to the date t_1 on receiving the first message M_1.

The Examiner respectfully notes that while the individual reference themselves may not teach the whole claim limitation, the references when combined as shown and explained previously do teach or suggest the whole limitation. Refer to the rejection explanations in the Prior Art rejection section below under 35 USC 103(a). The Examiner also invites the Applicant to read the Non Patent Literature by Lonn, H, titled "Initial Synchronization of TDMA Communication in Distributed Real-Time Systems" cited previously in the PTO-892 form because it furnishes the evidence of inherency relied upon that are present in TDMA Communications which is the kind of communication protocol taught by Swensen.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claim 1-8 are rejected under 35 U.S.C 103(a) as being unpatentable over Swensen et al. [US PN 5420883], hereinafter "Swensen" and in view of Hakkarainen et al. [US Pub. No. 2003/0147532 A1], hereinafter "Hakkarainen".

With regard to claim 1, Swensen discloses a secure method of exchanging information messages sent successively from a sending platform to a receiving platform [US PN 5420883, Fig 1], the method comprising:

a) an initialization sequence in which an initialization message containing information relating to a “timeslot or timewindow” for sending a first information message M_1 is exchanged between sending platform and receiving platform so that sending platform

and receiving platform know the timeslot for sending first information message M_1, [An initialization sequence is inherent in a time triggered communication system, such as that being taught by Swensen, using TDMA communication. In TDMA communication, messages contain a "timeslot" identification within a TDMA cycle so that the receiving platform can determine whether the correct message corresponding to a certain timeslot within a cycle/period has been received.] and b) an information message transmission sequence in which: said information messages are sent successively by sending platform at given time intervals ΔT_E [US PN 5420883, Col 5, Ln 47 – TDMA communication] with a sending time tolerance δ [US PN 5420883, Fig 20 -- Time tolerances are inherent in TDMA communication transmitter/receiver modules utilizing internal clocks.] based on a clock specific to sending platform, so that first message M1 is sent at date t_1 on said clock and the n^{th} message M_n is sent at the date $t_n = t_1 + (n-1) * \Delta T_E + \delta$ [This equation is inherent in all time triggered communication. It states that the time for a given time period, t_n, corresponding to a certain message is equal to the start time plus the total elapsed time including the time tolerance as part of the elapsed time.] and said messages received by receiving platform are processed as a function of their reception date t_r based on a clock specific to receiving platform [US PN 5420883, Fig 20, Itm 334 -- Internal clocks of transmitter and receiver modules.] and that said messages are received successively in a same observation time window F_n containing t_n with a width ΔT_F [Messages in a TDMA communication are received successively in a certain, and same "timeslot/timewindow" within a TDMA cycle/period.] said clock of the receiving platform being synchronized to said date t_1 on receiving said first message M_1

[In TDMA communication, clocks are synchronized based on whether the correct message corresponding to a certain timeslot within a TDMA cycle/period has been received.].

Swensen does not teach sending an initialization message containing information relating to a date t_1 [information relating to a certain TDMA period/cycle] for sending a first information message M_1. Swensen also does not teach each message M_n being coded by means of a dynamic code C_n specific to said date t_n of sending said message. Swensen also does not teach using a decoding sequence, DC_n, adapted to decode the dynamic code, C_n.

However, Hakkarainen teaches sending an initialization message containing information relating to a date t_1 for sending a first information message M_1 [US Pub No. 2003/0147532 A1, Par 0017, -- Initial decryption information needed to begin decrypting a message/service, M_1, at a certain time, t_1.]. Hakkarainen also teaches each message M_n being coded by means of a dynamic code C_n specific to said date t_n of sending said message [US Pub No. 2003/0147532 A1, Pg 3, Par 0029 – Decryption information associated with the first microperiod and future decryption information (associated with future microperiods) being provided by the Service Provider reads on dynamic code C_n specific to said date/time t_n of sending message. Dynamic code C_n used on each message, M_n, is defined by Applicant on page 4, Ln 14-20 of the Specification.] Hakkarainen also teaches using a decoding sequence, DC_n, adapted to decode the

dynamic code, C_n, [US 2003/0147532 A1, Pg 3, Par 0029 – Service Provider encrypts the decryption information associated with the first microperiod using e_0. This reads on the decoding sequence DC_n.] a clock of a receiving platform being synchronized to said date t_1 on receiving said first message M_1 [US 2003/0147532 A1, Pg 3, Par 29 – The Service Provider also provides the recipients with any necessary synchronization information].

It would have been obvious to one of ordinary skill in the art at the time of invention to extend Swensen's spread spectrum (TDMA) communication to include dynamic encryption/decryption as taught by Hakkarainen et al. so that certain messages M_n can only be accessed at certain TDMA cycles/periods, t_n. The suggestion/motivation for extending to include dynamic encryption/decryption would be to add a layer of security for information subjected to conditional (timing) access [US 2003/0147532 A1, Pg 1, Par 002].

Swensen et al. and Hakkarainen et al. are analogous art because they are both in the same field of securely exchanging information/message, ie. digital communications. Therefore, it would have been obvious to combine the inventions of Swensen et al. and Hakkarainen et al.

With regard to claim 2, the combined inventions of Swensen and Hakkarainen teach the secure method claimed in claim 1 of exchanging information messages, wherein during

said initialization sequence a) a coded initialization message M0 is sent from said sending platform to said receiving platform and a coded initialization message M'0 is sent from said receiving platform to said sending platform, said initialization messages M0, M'0 containing the information relating to said date t1 for sending said first information message M1, and said initialization messages M0, M'0 being decoded by said sending platform and said receiving platform which then know said date t1 for sending said first information message M1 [US PN 5420883, Col 13, Ln 26-47 – Swensen discloses the means for Control stations and Wayside Stations to communicate and achieve synchronized communication.] [US Pub No 2003/0147532 A1, Pg 2, Par 0017 – Hakkarainen also teaches the transmittal of initial decryption information, ie. “seed”, accompanied by synchronization information to enable the client to determine when the decryption information may be used.].

With regard to claim 3, the combined inventions of Swensen and Hakkarainen teach the secure method claimed in claim 1 of exchanging information messages, wherein, if said first message M1 is not received within an allotted time after reception of said initialization message, said clock of said sending platform is automatically synchronized to said date t1 at the moment corresponding to the end of the allotted time [In TDMA communication, it is inherent that clocks be synchronized initially so that messages in a TDMA cycle/period do not collide at the next subsequent cycles/periods.].

With regard to claim 4, the combined inventions of Swenson and Hakkarainen teach the secure method of exchanging information messages, wherein said observation window Fn corresponds to a time window $[t_1 + (n-1) * \Delta T_E - \Delta T_F * \varepsilon, t_1 + (n-1) * \Delta T_E + \Delta T_F * (1-\varepsilon)]$; where the width of the observation window ΔT_F satisfies the equation $\Delta T_F < \Delta T_E$ and ε is from 0 to 1. [This equation is applicable in TDMA communication since it gives the time coordinate of a certain timeslot in a given time period.]

With regard to claim 5, the combined inventions of Swenson and Hakkarainen teach a secure method of exchanging information messages, wherein a clock synchronization signal is sent regularly by sending platform between sending messages M_n. [US PN 5420883, Col 19, Ln 64-68]

With regard to claim 6, the combined information of Swensen and Hakkarainen teach a secure method of exchanging information messages, where information messages decoded by receiving platform are transmitted to an information processing module [US PN 5420883, Fig 11 – Messages regarding train speed, update, and control are transmitted to various information processing modules.].

With regard to claim 7, the combined inventions of Swensen and Hakkarainen discloses a secure method of exchanging information messages, where messages received by receiving platform during an observation window F_n are stored sequentially in a memory able to store only one message at a time and only the message stored in memory at the

end of observation window F_n is transmitted to said information processing module. [US PN 5420883, Fig 22-26 – demultilplexing data and processing.]

With regard to claim 8, the combined inventions of Swensen and Hakkarainen discloses a secure method of exchanging information messages, where sending platform is part of a centralized control station of a rail traffic supervision and control system, receiving platform is part of a fixed installation disposed alongside a rail track, and information processing module is a control unit on board a train circulating on a track section associated with fixed installation. [US PN 5420883, Fig 1]

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN JERIKO P. SAN JUAN whose telephone number is (571)272-7875. The examiner can normally be reached on M-F 8:30a - 6:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MJSJ/
Martin Jeriko San Juan
Examiner, Art Unit 2132

/Gilberto Barron Jr/
Supervisory Patent Examiner, Art Unit 2132